

144-2000-213
577.062
M-2 #1 8/17/79
UNASSIGNED UNITS

HVAC SPECIFICATION

REQUIREMENTS

All mechanical work shall be free from defects in workmanship and materials for a period of one (1) year from date of final acceptance and shall meet all local and state codes. All defects, which develop or are discovered within this period shall be repaired by the Contractor to the satisfaction of the Engineer and at no additional cost to the Authority.

GENERAL

- The Contractor shall examine the site of the proposed work to determine the existing conditions that may affect his work.
- It is the intention of the Contract Drawings and Specifications to call for finished work, tested and ready for operation. All materials shall be new and of first-quality.
- All material, work, incidental accessories or other details not shown but necessary to make the work complete and perfect, and in all respects ready for operation, even if not particularly specified, shall be provided by the Contractor at no additional cost to the Authority.
- The Contract Drawings are generally diagrammatic and are intended to convey the scope of work and indicate general arrangement of ductwork and pouches, and induction units.
- If any existing ducts, pipes, utilities, etc. are damaged during the installation, whether or not due to the Contractor's negligence they shall be repaired or replaced by the Contractor and left in a condition satisfactory to the Engineer.
- Coordinate locations of all pouches with architectural reflected ceiling plans.
- The space around pipes, ducts, etc. penetrating rated walls, shall not exceed 1/2" and shall be packed solid with mineral wool or equivalent. Penetrator shall be closed off by tight fitting metal caulkings on both sides of this construction as required by Sections C26-504.5 of N.Y.C. Building Code.

MATERIALS FURNISHED BY OR RETURNED TO THE AUTHORITY

- The Authority shall furnish to the Contractor the materials in the quantities as shown below for installation in the permanent construction. The furnishing and installation of any materials in excess of the quantities shown below shall be the responsibility of the Contractor.

- Light fixture air connection pouches 45 DOUBLE - 5 SINGLE
 - Round flexible duct for air connection pouches 45
 - Induction Units TYPE 77 - 1 TYPE 64
- THE CONTRACTOR SHALL DELIVER ALL EXCESS AND/OR INDUCTION UNIT(S) TO DESIGNATED AREA IN THE WTC COMPLEX AS DIRECTED BY ENGINEER.

DUCTWORK

- All ductwork shall be furnished, installed and fabricated in accordance with the latest edition of the SMACNA Duct Construction Standards Manual, using prime sheets of galvanized steel. All square elbows shall be provided with turning vanes on minimum 4" centers. Provide access doors at all fire and automatic dampers for access.
- All branches and take-offs shall be equipped with volume controllers.
- Support horizontal ducts with hangers secured to structural steel above at intervals not exceeding 8'0".
- Flexible connections to collate on the supply duct and the diffuser plenum of ceiling pouches shall be sealed with 3M Co. 800 sealant and clamped with Stainless Steel Ideal Type 52 clamps.
- All access doors shall be as per latest SMACNA Standards.
- Remove existing 4" round flexible duct connection that penetrates the 2 hr. rated closure panel within the induction unit cover. Install new 4" 26 gauge galvanized steel circular duct, seal all joints with 3M Co. 800 sealant and stainless steel adjustable type clamps. A maximum length of 4'0" of the existing flexible ductwork will be permitted to make the connection to the induction unit.
- All fire-rated ducts and flexible connectors shall be 7"0" unless otherwise indicated on drawing.

INDUCTION UNIT

- Install where shown on the drawing (furnished by P.A.), a factory assembled high pressure air-water induction type, summer winter room air conditioning unit, properly connected to primary air conduit and water piping. Induction unit shall be as manufactured by Carrier for the World Trade Center Model #365L00B, SEE INDUCTION UNIT SCHEDULE.
- Support and fasten unit to prevent all vibration, providing all required wall brackets supporting legs and leveling devices. Unit support method shall be subject to the approval of the Engineer and be similar to the method used for the existing unit.
- The Contractor shall adjust induction unit performance as shown on the drawing.
- Existing induction unit to be removed shall be done in a manner so as not to damage the unit. The unit shall be labeled, identifying the area it was removed from (building, floor, exposure and column number) and returned to the Port Authority in an area designated by the Engineer.
- The air connection to the induction unit shall be made with "smooflex" Type SMT as manufactured by Automated Industries or approved equal, of sizes shown, but not less than the full unit inlet size. The connections shall be sealed with Minnesota Mining & Mfg. Co. 800 sealant and clamped with Ideal Type 52 hose clamps, or approved equal. Flexible connections that penetrate any rated closures shall be installed as specified.
- All piping connecting to the induction unit shall be Copper ASTM B88, soft (annealed) Type L and fittings shall be standard weight, wrought copper and solder type. All solder joints shall be made with 60/40 tin and 2% silver solder, having a melting point GREATER THAN 420°F. All soldered joints shall be thoroughly cleaned before the application of the solder. All induction units shall be provided with lint screens and air transfer fittings FOR SPECIFIED INDUCTION UNITS.
- THE CONTRACTOR SHALL PROVIDE LINT SCREENS AND AIR TRANSFER FITTINGS FOR SPECIFIED INDUCTION UNITS.

FIRE DAMPERS

Fire dampers are based on Air Balance, Model #119 Type A, B & C. They shall be installed in accordance with the manufacturer's approved installation instructions and shall be N.Y.C. Board of Standards and Appeals (B.S.A.), Underwriters Laboratories (U.L.) approved and labeled.

CEILING REGISTERS, GRILLES, DIFFUSERS & LINER

Model numbers specified are manufactured by Anemostat-Waterloo or an approved equal. All finishes shall be baked white enamel.

- Grilles (RETURN): shall be Model S3HD

CONTROLS - ALL INDUCTION UNIT CONTROL SHALL BE DONE BY HONEYWELL.

BALANCING

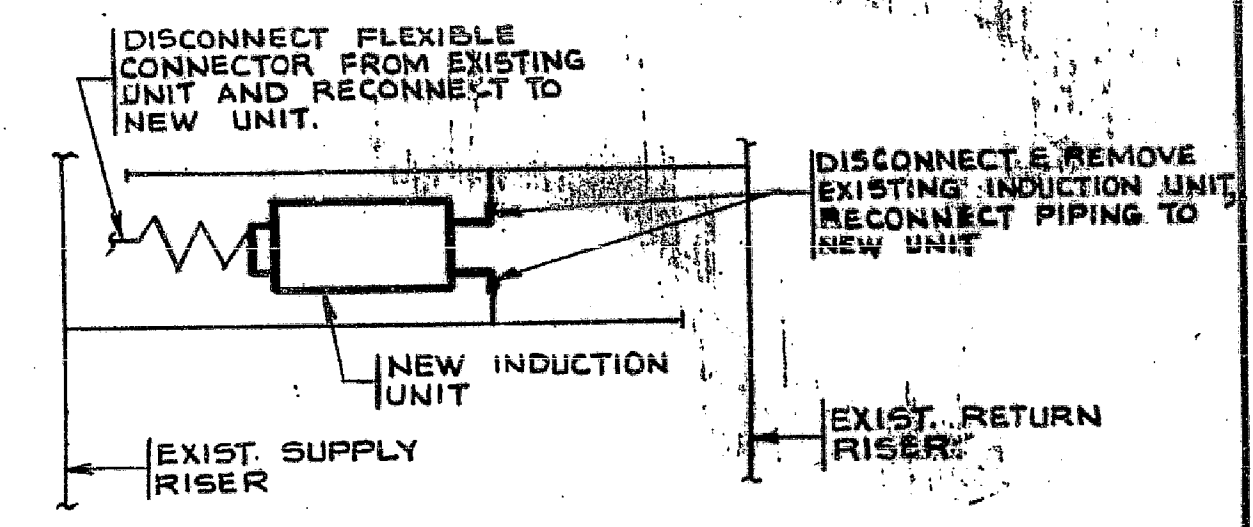
All systems shall be balanced in accordance with the latest standards of the "Associated Air Balance Council" and subject to the approval of the Engineer.

SUBMITTALS

Submit for approval three (3) sets of shop drawings of ductwork and details of fire damper installations. Submit three (3) sets of balancing data for fire dampers, ceiling registers, grilles and three copies of air balancing data report.

LEGEND

- NEW SINGLE POUCH
- NEW DOUBLE POUCH
- EXISTING DUCT WORK
- NEW DUCT WORK
- NEW FLEXIBLE CONNECTOR
- EXISTING FULL CAPACITY INDUCTION UNIT
- EXISTING FULL CAPACITY INDUCTION UNIT ADJUST TO HALF CAPACITY
- NEW ONE & ONE HALF CAPACITY INDUCTION UNIT REMOVE EXISTING FULL CAPACITY INDUCTION UNIT IN PLACE
- EXISTING FIRE DAMPER & ACCESS DOOR
- NEW FIRE DAMPER & ACCESS DOOR
- EXISTING THERMOSTAT
- NEW THERMOSTAT
- TRANSFER DUCT WITH FIRE DAMPER
- CEILING GRILLE
- (000) - NO. OF CFM (BALANCE)
- EXISTING DUCT WORK - REMOVAL
- EXISTING AUTOMATIC CONTROL VALVE
- EXISTING CONTROL TUBING
- EXISTING CONTROL TUBING - REMOVE
- NEW CONTROL TUBING



SCHEMATIC PIPING CONNECTIONS
TO NEW INDUCTION UNITS
NOMINAL COPPER PIPE SIZES
NOT TO SCALE

INDUCTION UNIT SCHEDULE				
TYPE NO.	CFM	COOLING BTU'S	HEATING BTU'S	SECONDARY WATER GPM
TYPE 6T	30	6450	7560	1.5
TYPE 7T	75	5600	7560	1.5

RELEASED FOR BIDDING
BY *[Signature]* DATE 9-12-79
RELEASED FOR CONSTRUCTION
BY *[Signature]* DATE 10/10/79
MANAGER, WTC PLANNING DIVISION

THIS DRAWING SUBJECT TO CONDITIONS IN CONTRACT. ALL INVENTIONS, IDEAS, DESIGNS AND METHODS HEREIN ARE RESERVED TO PORT AUTHORITY AND MAY NOT BE USED WITHOUT ITS WRITTEN CONSENT.

DESIGNED						REVISIONS						THE PORT AUTHORITY OF NY & NJ		MECHANICAL SPECIFICATIONS, LEGEND, DETAIL AND SCHEDULE	
DRAWN						DESCRIPTION						THE WORLD TRADE CENTER TOWER A 98TH FLOOR UNASSIGNED UNITS.			
NO.	DATE	APPR.	DESCRIPTION	NO.	DATE	APPR.	DESCRIPTION	NO.		DATE		CONTRACT NO. WTC 577.062		DRAWING NO. M-2	
1	8-7-79	[Signature]	GENERAL REVISIONS												
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[Signature]
CHIEF ENGINEER

[Signature]
ENGINEER OF DESIGN
AIR PORTS & WTC

JULY 6, 1979
DATE